What is claimed is:

1. A method of receiving a communications signal to produce two output signals in quadrature relation to one another, comprising:

deriving two reference signals from a single clock signal;

using the two reference signals, performing frequency downconversion of the communications signal to produce the two output signals;

forming an error signal representing the expectation of the product of the two output signals; and

using the error signal to adjust a phase difference between the reference signals.

2. The method of Claim 1, wherein using the error signal to adjust a phase difference between the reference signals comprises adjusting a delay element.

3. The method of Claim 2, wherein the delay element is a delay line.

4. The method of Claim 2, wherein the delay element is adjusted at the time of manufacture.

5. The method of Claim 2, wherein the delay element is automatically adjusted during operation.

6. A receiver for receiving a communications signal to produce two output signals in quadrature relation to one another, comprising:

a local oscillator;

an adjustable phase shift network for deriving two reference signals from the local oscillator;

means for, using the two reference signals, performing frequency

downconversion of the communications signal to produce the two output signals; and

a phase error detection network for forming an error signal representing the expectation of the product of the two output signals.

7. The apparatus of Claim 6, wherein the phase error detection network comprises a multiplier for multiplying the two output signals to form a product signal.

8. The apparatus of Claim 7, wherein the phase error detection network comprises a low-pass filter for filtering the product signal to thereby produce the error signal.

9. The apparatus of Claim 6, wherein the adjustable phase shift network comprises at least one delay line.

10. The apparatus of Claim 9, wherein the adjustable phase shift network comprises at least two delay lines.

11. The apparatus of Claim 6, wherein the means for performing frequency downconversion comprises Gilbert-cell mixers.

12. The apparatus of Claim 6, wherein the means for performing frequency downconversion comprises switch-mode mixers.

13. The apparatus of Claim 12, wherein the frequency of the local oscillator is a sub-harmonic of a frequency of the communications signal.

14. A method of driving a power switching transistor having a threshold voltage, comprising:

coupling a driver transistor to the switching transistor and to two

different rail voltages, one greater than the threshold voltage and one less than the threshold voltage; and

using a sinusoidal signal, causing the driver transistor to alternate between two states including one state in which the driver transistor causes one rail voltage to be applied to the switching transistor to turn the switching transistor on, and another state in which the driver transistor causes another rail voltage to be applied to the switching transistor to turn the switching transistor off.